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RAW SEQUENCE LISTING   DATE: 12/20/2001
PATENT APPLICATION: US/09/894,018   TIME: 12:50:17

Input Set : D:\39963-20033.txt
Output Set: N:\CRF3\12202001\I894018.raw

ENTERED

```
 3 <110> APPLICANT: EPIMMUNE, Inc.
 4         Sette, Alessandro
 5         Chestnut, Robert
 6         Livingston, Brian
 7         Baker, Denisw
 8         Newman, Mark
 9         Brown, David
11 <120> TITLE OF INVENTION: METODS AND SYSTEM FOR OPTIMIZING
12         MINIGENES AND PEPTIDES THEREBY
15 <130> FILE REFERENCE: 39963-20033.00
17 <140> CURRENT APPLICATION NUMBER: US 09/894,018
18 <141> CURRENT FILING DATE: 2001-06-27
20 <150> PRIOR APPLICATION NUMBER: PCT/US00/35568
21 <151> PRIOR FILING DATE: 2000-12-28
23 <150> PRIOR APPLICATION NUMBER: US 60/173,390
24 <151> PRIOR FILING DATE: 1999-12-28
26 <150> PRIOR APPLICATION NUMBER: US 60/284,221
27 <151> PRIOR FILING DATE: 2001-04-16
29 <160> NUMBER OF SEQ ID NOS: 368
31 <170> SOFTWARE: FastSEQ for Windows Version 4.0
33 <210> SEQ ID NO: 1
34 <211> LENGTH: 22
35 <212> TYPE: PRT
36 <213> ORGANISM: Artificial Sequence
38 <220> FEATURE:
39 <223> OTHER INFORMATION: Oligonucleotide for minigene HBV.1 with epitope
40         identity core 18
42 <400> SEQUENCE: 1
43 Thr Leu Lys Ala Ala Ala Phe Leu Pro Ser Asp Phe Phe Pro Ser Val
44  1               5                   10                  15
45 Phe Leu Leu Ser Leu Gly
46             20
48 <210> SEQ ID NO: 2
49 <211> LENGTH: 22
50 <212> TYPE: PRT
51 <213> ORGANISM: Artificial Sequence
53 <220> FEATURE:
54 <223> OTHER INFORMATION: Oligonucleotide for minigene pMIn1 with epitope
55         identity core 18
57 <400> SEQUENCE: 2
58 Thr Leu Lys Ala Ala Ala Phe Leu Pro Ser Asp Phe Phe Pro Ser Val
59  1               5                   10                  15
60 Lys Leu Thr Pro Leu Cys
61             20
63 <210> SEQ ID NO: 3
64 <211> LENGTH: 21
65 <212> TYPE: PRT
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66 <213> ORGANISM: Artificial Sequence
68 <220> FEATURE:
69 <223> OTHER INFORMATION: Oligonucleotide for minigene HCV1 with epitope
70   identity core 132
72 <400> SEQUENCE: 3
73 Ile Leu Gly Gly Trp Val Asp Leu Met Gly Tyr Ile Pro Leu Val Tyr
74 1   5   10   15
75 Leu Val Ala Tyr Gln
76   20
78 <210> SEQ ID NO: 4
79 <211> LENGTH: 20
80 <212> TYPE: PRT
81 <213> ORGANISM: Artificial Sequence
83 <220> FEATURE:
84 <223> OTHER INFORMATION: Oligonucleotide for minigene HCV2 with epitope
85   identity core 132
87 <400> SEQUENCE: 4
88 Val Pro Gly Ser Arg Gly Asp Leu Met Gly Tyr Ile Pro Leu Val Ala
89 1   5   10   15
90 Lys Phe Val Ala
91   20
93 <210> SEQ ID NO: 5
94 <211> LENGTH: 9
95 <212> TYPE: PRT
96 <213> ORGANISM: Artificial Sequence
98 <220> FEATURE:
99 <223> OTHER INFORMATION: Oligopeptide
101 <400> SEQUENCE: 5
102 Val Leu Ala Glu Ala Met Ser Gln Val
103 1   5
105 <210> SEQ ID NO: 6
106 <211> LENGTH: 9
107 <212> TYPE: PRT
108 <213> ORGANISM: Artificial Sequence
110 <220> FEATURE:
111 <223> OTHER INFORMATION: Oligopeptide
113 <400> SEQUENCE: 6
114 Ile Leu Lys Glu Pro Val His Gly Val
115 1   5
117 <210> SEQ ID NO: 7
118 <211> LENGTH: 8
119 <212> TYPE: PRT
120 <213> ORGANISM: Artificial Sequence
122 <220> FEATURE:
123 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
124   Kb)
126 <221> NAME/KEY: VARIANT
127 <222> LOCATION: (1)...(8)
128 <223> OTHER INFORMATION: Xaa = Any Amino Acid

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      130 <400> SEQUENCE: 7
W--> 131 Xaa Xaa Xaa Xaa Phe Xaa Xaa Leu
      132   1               5
      134 <210> SEQ ID NO: 8
      135 <211> LENGTH: 8
      136 <212> TYPE: PRT
      137 <213> ORGANISM: Artificial Sequence
      139 <220> FEATURE:
      140 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
      141       Kb)
      143 <221> NAME/KEY: VARIANT
      144 <222> LOCATION: (1)...(8)
      145 <223> OTHER INFORMATION: Xaa = Any Amino Acid
      147 <400> SEQUENCE: 8
W--> 148 Xaa Xaa Xaa Xaa Phe Xaa Xaa Ile
      149   1               5
      151 <210> SEQ ID NO: 9
      152 <211> LENGTH: 8
      153 <212> TYPE: PRT
      154 <213> ORGANISM: Artificial Sequence
      156 <220> FEATURE:
      157 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
      158       Kb)
      160 <221> NAME/KEY: VARIANT
      161 <222> LOCATION: (1)...(8)
      162 <223> OTHER INFORMATION: Xaa = Any Amino Acid
      164 <400> SEQUENCE: 9
W--> 165 Xaa Xaa Xaa Xaa Phe Xaa Xaa Met
      166   1               5
      168 <210> SEQ ID NO: 10
      169 <211> LENGTH: 8
      170 <212> TYPE: PRT
      171 <213> ORGANISM: Artificial Sequence
      173 <220> FEATURE:
      174 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
      175       Kb)
      177 <221> NAME/KEY: VARIANT
      178 <222> LOCATION: (1)...(8)
      179 <223> OTHER INFORMATION: Xaa = Any Amino Acid
      181 <400> SEQUENCE: 10
W--> 182 Xaa Xaa Xaa Xaa Phe Xaa Xaa Val
      183   1               5
      185 <210> SEQ ID NO: 11
      186 <211> LENGTH: 8
      187 <212> TYPE: PRT
      188 <213> ORGANISM: Artificial Sequence
      190 <220> FEATURE:
      191 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
      192       Kb)
```

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```
        194 <221> NAME/KEY: VARIANT
        195 <222> LOCATION: (1)...(8)
        196 <223> OTHER INFORMATION: Xaa = Any Amino Acid
        198 <400> SEQUENCE: 11
W--> 199 Xaa Xaa Xaa Xaa Tyr Xaa Xaa Leu
        200 1                5
        202 <210> SEQ ID NO: 12
        203 <211> LENGTH: 8
        204 <212> TYPE: PRT
        205 <213> ORGANISM: Artificial Sequence
        207 <220> FEATURE:
        208 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
        209       Kb)
        211 <221> NAME/KEY: VARIANT
        212 <222> LOCATION: (1)...(8)
        213 <223> OTHER INFORMATION: Xaa = Any Amino Acid
        215 <400> SEQUENCE: 12
W--> 216 Xaa Xaa Xaa Xaa Tyr Xaa Xaa Ile
        217 1                5
        219 <210> SEQ ID NO: 13
        220 <211> LENGTH: 8
        221 <212> TYPE: PRT
        222 <213> ORGANISM: Artificial Sequence
        224 <220> FEATURE:
        225 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
        226       Kb)
        228 <221> NAME/KEY: VARIANT
        229 <222> LOCATION: (1)...(8)
        230 <223> OTHER INFORMATION: Xaa = Any Amino Acid
        232 <400> SEQUENCE: 13
W--> 233 Xaa Xaa Xaa Xaa Tyr Xaa Xaa Met
        234 1                5
        236 <210> SEQ ID NO: 14
        237 <211> LENGTH: 8
        238 <212> TYPE: PRT
        239 <213> ORGANISM: Artificial Sequence
        241 <220> FEATURE:
        242 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
        243       Kb)
        245 <221> NAME/KEY: VARIANT
        246 <222> LOCATION: (1)...(8)
        247 <223> OTHER INFORMATION: Xaa = Any Amino Acid
        249 <400> SEQUENCE: 14
W--> 250 Xaa Xaa Xaa Xaa Tyr Xaa Xaa Val
        251 1                5
        253 <210> SEQ ID NO: 15
        254 <211> LENGTH: 9
        255 <212> TYPE: PRT
        256 <213> ORGANISM: Artificial Sequence
```

```
        258 <220> FEATURE:
        259 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
        260       Kb)
        262 <221> NAME/KEY: VARIANT
        263 <222> LOCATION: (1)...(9)
        264 <223> OTHER INFORMATION: Xaa = Any Amino Acid
        266 <400> SEQUENCE: 15
W-->    267 Xaa Xaa Xaa Xaa Phe Xaa Xaa Xaa Leu
        268 1                 5
        270 <210> SEQ ID NO: 16
        271 <211> LENGTH: 9
        272 <212> TYPE: PRT
        273 <213> ORGANISM: Artificial Sequence
        275 <220> FEATURE:
        276 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
        277       Kb)
        279 <221> NAME/KEY: VARIANT
        280 <222> LOCATION: (1)...(9)
        281 <223> OTHER INFORMATION: Xaa = Any Amino Acid
        283 <400> SEQUENCE: 16
W-->    284 Xaa Xaa Xaa Xaa Phe Xaa Xaa Xaa Ile
        285 1                 5
        287 <210> SEQ ID NO: 17
        288 <211> LENGTH: 9
        289 <212> TYPE: PRT
        290 <213> ORGANISM: Artificial Sequence
        292 <220> FEATURE:
        293 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
        294       Kb)
        296 <221> NAME/KEY: VARIANT
        297 <222> LOCATION: (1)...(9)
        298 <223> OTHER INFORMATION: Xaa = Any Amino Acid
        300 <400> SEQUENCE: 17
W-->    301 Xaa Xaa Xaa Xaa Phe Xaa Xaa Xaa Met
        302 1                 5
        304 <210> SEQ ID NO: 18
        305 <211> LENGTH: 9
        306 <212> TYPE: PRT
        307 <213> ORGANISM: Artificial Sequence
        309 <220> FEATURE:
        310 <223> OTHER INFORMATION: Motif utilized for junctional minimization (murine
        311       Kb)
        313 <221> NAME/KEY: VARIANT
        314 <222> LOCATION: (1)...(9)
        315 <223> OTHER INFORMATION: Xaa = Any Amino Acid
        317 <400> SEQUENCE: 18
W-->    318 Xaa Xaa Xaa Xaa Phe Xaa Xaa Xaa Val
        319 1                 5
        321 <210> SEQ ID NO: 19
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Use of n and/or Xaa has been detected in the Sequence Listing.
Review the Sequence Listing to insure a corresponding
explanation is presented in the <220> to <223> fields of
each sequence using n or Xaa.

VERIFICATION SUMMARY   DATE: 12/20/2001
PATENT APPLICATION: US/09/894,018   TIME: 12:50:19

Input Set : D:\39963-20033.txt
Output Set: N:\CRF3\12202001\I894018.raw

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L:131 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:7
L:148 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:8
L:165 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:9
L:182 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:10
L:199 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11
L:216 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:12
L:233 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:13
L:250 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:14
L:267 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:15
L:284 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:16
L:301 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:318 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:335 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:19
L:352 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:20
L:369 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:21
L:386 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22
L:400 M:283 W: Missing Blank Line separator, <400> field identifier
L:401 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:23
L:417 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:24
L:433 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:25
L:449 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:26
L:456 M:283 W: Missing Blank Line separator, <220> field identifier
L:464 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:27
L:480 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:28
L:496 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:29
L:512 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:30
L:529 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:31
L:546 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:32
L:563 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:33
L:580 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:34
L:597 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:614 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36
L:631 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:37
L:648 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:38
L:665 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:39
L:682 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:40
L:699 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:41
L:716 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:42
L:733 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:43
L:751 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:44
L:768 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:45
L:785 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:46
L:802 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:47
L:819 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:48
L:836 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:49
L:853 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:50
L:870 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:51
L:887 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:52
```

VERIFICATION SUMMARY
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```
L:904 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:53
L:921 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:54
L:938 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:55
L:955 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:56
L:970 M:283 W: Missing Blank Line separator, <400> field identifier
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